Chapter 3

Solid Waste Management in Kansas

Kansas Solid Waste Management Plan

INTRODUCTION

This chapter summarizes waste management activities in Kansas in 2000. Some historical data and information is provided to show trends that are occurring or changes that have occurred in recent years. Statewide waste management needs are directly related to the quantity and composition of solid waste and to current management methods.

Solid waste is generated by every person and business in the state and it is managed by thousands of public and private entities. Even though generator source reduction and material reuse activities are important with respect to resource conservation and waste reduction, this plan focuses on "waste" management activities which begin after generators transfer their waste to third parties for processing or disposal, or in some cases, perform that work themselves.

For the purposes of this chapter and in most cases throughout this plan, *solid waste management* begins with the collection of waste from the millions of points of generation. The diversion of "recyclables" from the solid waste stream is also considered as a part of waste management even though "recyclables" are not officially "solid waste" in Kansas. State law has specifically exempted source-separated recyclables from the definition of solid waste in order to eliminate the need to issue permits to all facilities which store or process recyclable materials.

This chapter provides quantitative information on waste generation and management methods. Limited information is available on the handling and marketing of recyclables. Kansas has for two years utilized a procedure developed by the U.S. EPA to estimate municipal solid waste (MSW) recycling. The procedure is dependent on voluntary reporting by the handlers of recyclables. Also, it does not seek to identify direct marketing of some recyclables by generators. Because of these facts, it is certain that this methodology underestimates the actual amount of recycling in Kansas.

Kansas is a major net importer of solid wastes from Missouri; however, there is also some question regarding the accuracy of the reported imports data by landfills receiving waste from other states. As with recycling, KDHE believes that imports may be actually greater than reported. This conclusion is based upon calculations performed on landfill disposal records reported for counties with significant imports. When the reported imports are subtracted from the total landfilled quantities, the waste generation rates for the citizens served by the landfills are unusually high. This could mean imports are under-reported.

LAWS INFLUENCE WHO MANAGES SOLID WASTE IN KANSAS

The federal government has played an important role in establishing minimum standards for the design and operation of certain types of solid waste disposal facilities. However, federal regulations have not established required management methods which states must follow. The court system has also been actively involved in solid waste issues, primarily as related to the concept of "flow control." The court has consistently ruled that no one, including state or local governments, can take any actions to inhibit the flow of solid waste across state lines because such actions would violate the Commerce Clause of the U.S. Constitution. The courts have been less consistent when dealing with intrastate flow issues, such as whether a county can require all waste generated within its borders to go to their county-run facility. Flow control issues continue to be debated at the federal level and in the courts. Congress has for several years considered bills which would give states some authority to restrict waste imports; however, no solutions to these complex issues have been developed.

State solid waste law (K.S.A. 65-3401, et seq.) has been a major factor in determining "who manages solid waste in Kansas." In the early 1970s, counties were given new statutory responsibility to ensure that their solid wastes were properly managed. Virtually every county established a sanitary landfill which replaced the 1,000 or so old city dumps which previously received all MSW. Most new landfills were owned and operated by counties. State law did not prevent private companies from operating municipal solid waste landfills, but very few private landfills were established except in the urban areas where more waste was available to justify private investments. Even fewer city-run landfills existed after the 1970s. In those cases, counties designated cities to act on their behalf to provide waste disposal services.

Even though all of the initial county-owned sanitary landfills have been closed or upgraded to meet new state and federal standards, counties still dominate with respect to owning and operating municipal solid waste (MSW) processing or disposal facilities. The five types of facilities permitted to manage MSW are landfills, transfer stations, composting sites, household hazardous waste facilities, and incinerators. In 2000, counties owned and operated approximately 75% of all MSW facilities. Discounting composting facilities, which are primarily city-owned, counties operate over 90 percent of the remaining MSW facilities. Despite this fact, private companies operate most of the largest MSW facilities which are regional landfills serving northeast and southeast Kansas and receiving imports from Missouri.

The predominance of county-owned and operated facilities only applies to MSW management. Private enterprise plays a more important role with respect to the management of construction and demolition waste, industrial waste, medical waste, and waste tires. More details on the facilities which comprise the Kansas waste management network are presented later in this chapter.

SOLID WASTE GENERATED AND MANAGED IN KANSAS

Over the past several years, KDHE has established new reporting requirements for permitted solid waste facilities. Data quality continues to improve as facilities become more familiar with waste measurement methods, record keeping, and reporting. The ability to use historical data to describe trends related to waste quantities and composition is limited to the amount of waste landfilled and subject to the landfill tipping fee of $1.00 per ton. Historical data is limited because it does not include some landfilled waste which is exempt from paying the tipping fee. Beginning in FY 1999, more comprehensive

reporting has been required regarding composition and the source of waste. In future years, more detailed trend analyses will be possible using this data.

Based upon all available data, it appears that the amount of solid waste generated and landfilled in Kansas has steadily increased over the past several years and this trend seems to be continuing. **Figure 3-1** shows that the amount of waste landfilled and subject to the tipping fee increased by over 18 percent from 1997 to 2000, or more than 6 percent per year. At the same time, recycling also increased (recycling rates are discussed in more detail later in this chapter). Greater imports may have resulted in some of this increase; however, generation also appears to be growing. The combination of all available data clearly indicates that Kansas landfill capacity is being consumed more quickly in 2000 than it was in the mid-1990s.

Figure 3-1

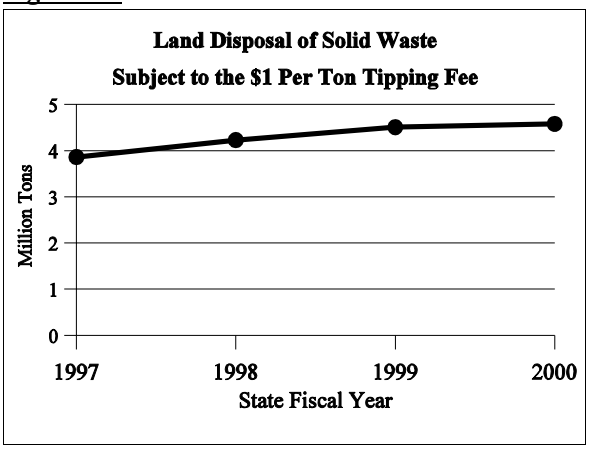


Table 3-1 shows the total amounts of solid waste disposed of in Kansas landfills in FY 2000 by waste type. It also quantifies the amount of landfilled waste reported by the landfill owners as imported and exported. As mentioned above, KDHE believes the imported amount is actually higher and the state generated amount is lower. If this hypothesis is true, it would affect the calculated state recycling rate which is based on tons diverted to recycling programs and tons of "Kansas" generated waste which is landfilled.

The recycling rate would be higher if the imports are underestimated.

The "Kansas Generated" waste column in **Table 3-1** shows that over 2.7 million tons of Kansas generated MSW was landfilled in FY 2000. If the reported amount of recycled MSW is added to this quantity, we find that about 3.1 million tons of MSW is generated in Kansas per year. This equates to a generation rate of 6.4 pounds per person per day. The national average MSW generation rate is only about 4.4 pounds per person per day as reported in an April 2000 U.S. EPA report. Assuming the EPA estimate is accurate, it is unrealistic that Kansans generate nearly 50 percent more MSW than average Americans. For this reason, it appears that the reported MSW tonnages are inaccurate, at least with respect to whether the landfilled waste is generated in Kansas or imported. KDHE will

Table 3-1

Solid Waste Landfilled in State Fiscal Year 2000

Waste Type	Tons Landfilled			
	Total	Kansas Generated	Imported	Tons Exported
Municipal Solid Waste	3,175,000	2,741,000	434,000	43,000
Construction & Demolition	1,056,000	977,000	79,000	—
Industrial	618,000	617,000	1,000	—
Special Waste	405,000	317,000	88,000	—
Waste Tires	15,000	15,000	—	—
	5,269,000	4,667,000	602,000	43,000

continue to study these data and work with the large importing landfills to determine whether they have accurately reported imports. Another possible problem could be that some construction and demolition waste may be getting reported as MSW.

Detailed waste composition data are not presented in this plan even though such information can be valuable when carrying out local planning. KDHE intends to separately assemble all available information into a published report which will be available upon request rather than include it in this plan. The volume of data will be quite large including information developed in several independent waste composition studies. In addition, KDHE is initiating a study in late 2000 to supplement currently available composition data to ensure that relevant data are available for most of the state's diverse mix of counties.

RECYCLING IN KANSAS

Recycling programs in all parts of the state have seen major growth in the last five years. The Kansas Business and Industry Recycling Program (BIRP) reports that the number of recycling centers and programs have increased by nearly 500 since 1994 to about 1300. Several factors have led to this growth including:

- The cost of waste disposal has increased due to the implementation of new state and federal landfill regulations (Subtitle D landfill standards).
- Dozens of landfills have closed and waste is now being transported to regional landfills at high added costs.
- Over $9 million in recycling and composting grants has been awarded to public and private entities to stimulate local waste reduction projects.
- KDHE and local government officials have implemented public education programs encouraging citizens and businesses to recycle and compost.
- KDHE has held the annual Recycling and Composting Works! conference to provide training and encouragement to local government officials regarding the start-up and operation of recycling and composting programs.
- Cities, counties, private businesses, and others have developed partnerships to facilitate efficient and effective waste management programs.

Utilizing the U.S. EPA methodology and voluntary reporting by those entities involved in recycling to estimate the Kansas MSW recycling rate, KDHE documented the diversion of 384,000 tons of waste in FY 1999. **Table 3-2** shows the reported recycling tonnage for FY 1999 by materials type. FY 2000 data are not yet available. This number represents reported tons of recovered recyclables from those persons and businesses willing to cooperate with this statewide effort. It clearly does not cover all recycling activities because several recyclers consider such information to be confidential. Overall, about half of the surveyed companies did not report their recycling tonnage to KDHE. However, most large recyclers did report and some of the unreported company activity may be accounted for in another company's report. Because recyclables are often handled by more than one company, it is necessary to ensure that double counting does not occur.

It is also noteworthy that the reported recycling tonnage in **Table 3-2** does not cover all direct marketing by generators, especially office paper or paperboard marketing direct to paper mills. Unfortunately, no information exists to help KDHE adjust the recovered tonnage to account for unreported tonnage or direct marketing. It can only be concluded that the actual amount of recycled waste is more than 384,000 tons per year.

The MSW recycling rate is calculated by dividing the recycled tonnage by the total generated tonnage. Using 1999 numbers (384,000 tons divided by 3,134,000 tons), the MSW recycling rate is calculated to have been 12.3 percent. The known and suspected problems with these data result in an underestimated recycling rate. For example, underestimated MSW imports and recycling tonnage could be yielding a calculated recycling rate which is several percentage points too low. It is probably safe to conclude that the Kansas recycling rate in 1999 was about 15 percent.

Table 3-2

Waste Materials Diverted from the MSW Stream for Recycling and Composting in FY 2000

Material	Tons Diverted
Aluminum	16,168
Comingled	12,832
Food Waste	1,400
Glass	6,238
Lead Batteries	2,284
Oil Filters	200
Old Corrugated	52,703
Old Newspaper	61,162
Other Metal	147,622
Other paper	20,171
Plastic	2,074
Textiles	62
Tires	5,858
Wood	5,034
Yard Waste	49,887
Total	**383,695**

Kansas laws and regulations do not require cities or counties to meet certain recycling goals as some states do. Also, the State of Kansas has no landfill bans on materials which can be recycled or composted. The only exception to this is that waste tires may not be disposed of in municipal solid waste landfills. However, they may be landfilled in waste tire monofills. Counties must develop solid waste plans which include provisions to reduce the landfilling of solid waste; however, counties have complete flexibility in deciding the types of waste reduction activities which will be implemented. State technical and financial assistance programs as well as public education are designed to encourage counties to set high, but realistic goals for themselves related to waste reduction efforts. Some counties have made goal setting a priority while other counties have not.

Kansas recycling has grown steadily during the 1990s reaching 15 percent or more in 2000. This growth is likely to be sustainable because it has grass roots support behind it and the infrastructure has built up gradually rather than in response to a state mandate. The added benefits of many recent recycling and composting grants have not yet been measured. Many new recycling and composting programs had barely gotten off the ground when the most recent estimates were made. More growth is expected in the state MSW recycling rate over the next 5 to 10 years as hundreds of city, county, and private recycling programs reach maturity and as services spread to more citizens.

SOLID WASTE MANAGEMENT FACILITIES

No person (i.e., a business or an individual) or local government unit may process or dispose of solid waste without first receiving a solid waste permit issued by KDHE. This does not include the handling of source-separated recyclables which are exempt from this requirement of state law. A major system of permitted public and private facilities has

developed to manage the millions of tons of solid waste which are generated in or imported to Kansas each year. **Table 3-3** lists the types of solid waste permits which are issued by the department along with: (1) the number of active permits in each category and (2) the relative mix of permit holders for each category (i.e., cities, counties, private companies, and state or federal government). As explained earlier in this chapter, counties dominate with respect to the types of facilities which manage MSW; cities hold most central composting facility permits; and private companies hold most industrial and C & D landfill permits and waste tire permits.

Table 3-3

Ownership of Permitted Solid Waste Facilities in Kansas

Facility Type	Owner				
	City	County	Private	State/ Federal	Total
Composting	46	24	7	2	79
Construction & Demolition LF	24	52	38	6	120
Household Hazardous Waste	4	26	0	1	31
Incinerator	0	1	2	0	3
Industrial Landfill	5	4	31	3	43
Landfarm	0	0	3	1	4
Medical Waste Processor	0	0	1	0	1
Mobile Tire Processor	0	0	9	0	9
Municipal Solid Waste LF					
Subtitle D	3	11	8	0	22
Small Arid	2	31	0	0	33
Solid Waste Processing	0	0	2	1	3
Transfer Station	3	47	7	0	57
Waste Tire Collection Center	0	0	1	0	1
Waste Tire Monofill	3	10	13	0	26
Waste Tire Processor	0	0	25	0	25
Waste Tire Transporter	0	0	49	0	49
Total	90	206	196	14	506

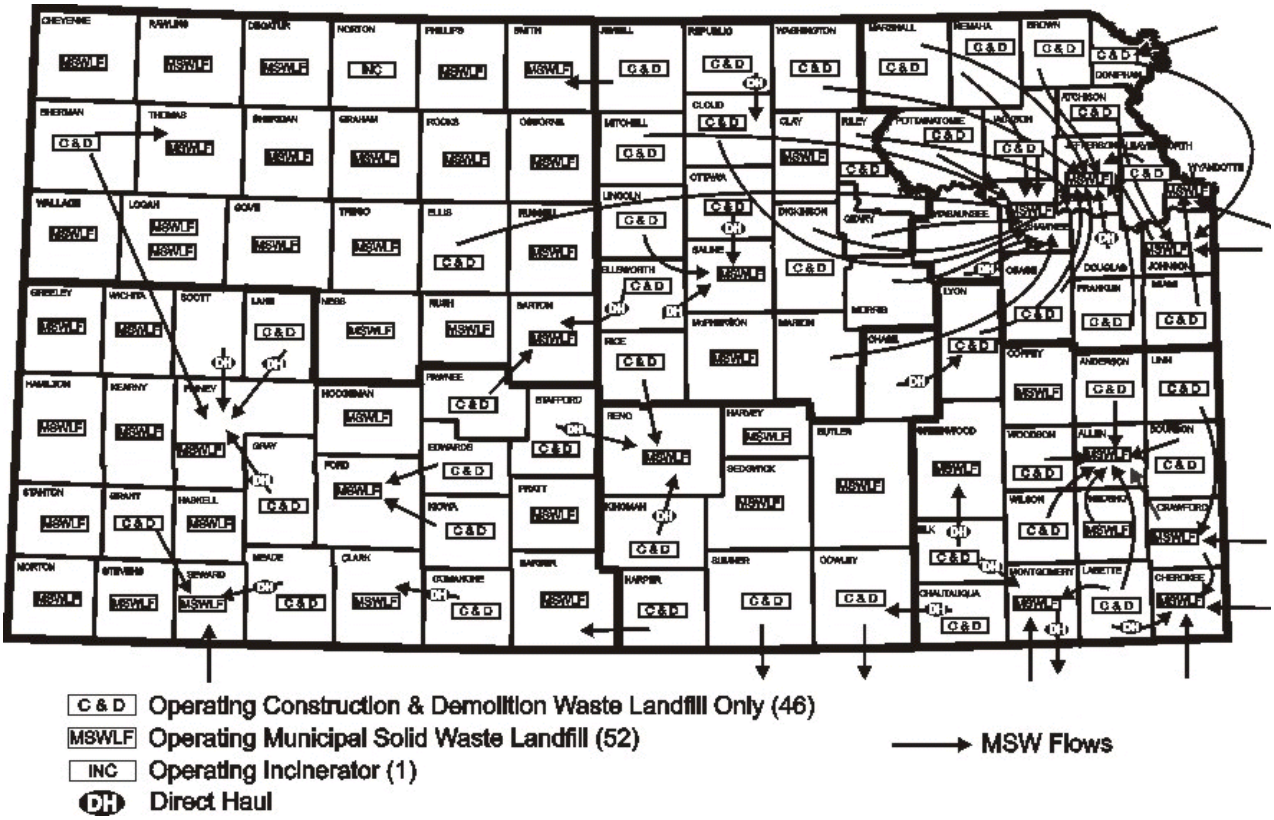
Most waste generated in Kansas or imported to Kansas is landfilled in one of the five basic types of permitted landfills:

- Subtitle D MSW
- Small Arid MSW
- Industrial
- Construction & Demolition (C & D)
- Waste Tire Monofills

Perhaps as much as 20 percent of MSW is diverted to the combination of all recycling facilities, composting facilities and household hazardous waste (HHW) facilities. Less than one-tenth of one percent of Kansas waste is burned in the only MSW incinerator in Norton County. When imports are added to waste generated in-state to give the total quantity managed in Kansas, nearly 93 percent is landfilled. This high estimate does not consider the very large tonnage which is recycled as scrap metal or clean rubble. Those materials generally fall outside of the solid waste stream which is covered by local planning and state laws and regulations.

Figure 3-2

Municipal Solid Waste Flows in Kansas



The solid waste facility network includes the transportation from the points of generation to the ultimate disposal sites. **Figure 3-2** shows the movement of MSW between counties and the flow of waste into or out of Kansas. There is a major flow of MSW from the counties which have closed their MSW landfills and replaced them with transfer stations. Most landfill closures occurred in eastern Kansas where the small arid landfill exemption was not available. This resulted in the need for more regional facilities in the eastern half of the state, especially in northeast Kansas where three large regional facilities are operated by private companies. Western Kansas shows much less movement of MSW because most counties took advantage of the federal and state regulations which established a separate set of standards for small landfills (less than 20 tons per day) in areas receiving less than 25 inches of rainfall per year.

The period from 1992 until the late 1990s included a tremendous shift in the types and numbers of permitted solid waste facilities. In 1992, virtually every county had a landfill for all waste types and nothing else. By 2000, many new types of facilities have become commonplace including transfer stations in counties where MSW landfills closed, composting facilities, and HHW facilities. The growth in composting and recycling facilities is noteworthy. Both types of facilities are voluntarily established by local governments, and some private companies, to provide services related to waste reduction, resource conservation, and the protection of the environment. Kansas'

31 permitted HHW facilities provide disposal/recycling services to nearly 90 percent of the state's population, perhaps the highest in the country. The increase in community composting programs from none to 79 permitted facilities along with many other small non-permitted operations in a five year period has been astounding. These numbers continue to grow steadily each year.

The trends in shifting types of waste management facilities are mostly complete and Kansas has settled into a fairly stable network of facilities. The only remaining change that is needed is the closure of the few remaining Subtitle D landfill cells that are operating under the conditions of a vertical expansion before the regulatory deadline of October 9, 2001. Four of the nine landfills operating as vertical expansions over old unlined cells are expected to close and transfer their waste to another facility. The other five have initiated or completed actions to construct new lined disposal cells at the existing permitted sites. Following this last step in the decade-long waste management transition, the Kansas system should become even more stable.

Further changes in the solid waste facility network should not occur unless a major change in regulations or economics. One possible change to regulations that could impact the economic feasibility of C & D landfills in Kansas is the addition of groundwater monitoring requirements for some landfills. New C & D landfill regulations will be finalized in 2001 and an external task force has recommended to KDHE that groundwater monitoring be included unless the permit holder can demonstrate that natural site geology provides adequate groundwater protection. If this regulation is adopted, some C & D landfills may decide to close rather than comply with the groundwater monitoring requirements.

SPECIAL WASTE GENERATION AND MANAGEMENT

A total of 405,080 tons of special waste were reported to be disposed of in Kansas MSW landfills in FY 2000. Of this total, 317,160 tons were generated in Kansas and 87,920 tons were imported. "Special waste" is defined in state regulations as: "any solid waste that, due to physical, chemical or biological characteristics may: (1) present concerns regarding handling, owner or operator safety, management, or disposal; and (2) require special management standards." Common special wastes include asbestos, medical waste, petroleum contaminated soil, and various sludges or other pollution control residuals.

Special waste disposal authorizations are usually granted by the Bureau of Waste Management as "not to exceed" quantities. Landfills typically receive less waste than they were authorized to receive. Generators of special waste are responsible for characterizing special waste and arranging for its transportation to MSW landfills.

MSW LANDFILL CAPACITY

A detailed review of the capacities of existing permitted landfills has not been completed. However, limited information is available on current permitted capacities at all MSW landfills. This information would not include the potential to expand permitted capacity either vertically or horizontally at existing facilities. Therefore, the available information would represent minimum available capacities at the existing 55 MSW landfills in Kansas.

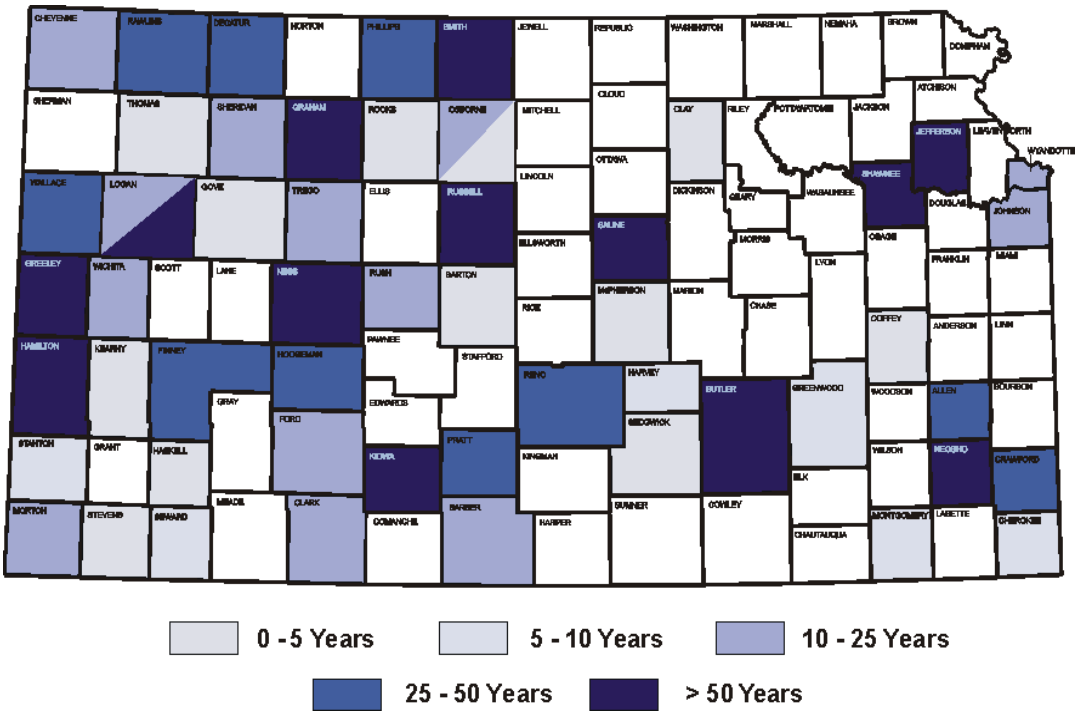
Figure 3-3 shows the counties where MSW landfills are located and the estimated remaining capacities expressed as years based upon current disposal rates, including all waste imported to those landfills from in-state and out-of-state sources.

Overall, Kansas has excellent landfill capacity. Several very large private landfills exist in active rock quarries in northeast Kansas. Permitted capacities in these facilities is much longer than 50 years. Many other smaller landfills scattered across the state should also provide good long-term capacity for the users of the sites. Several landfills which show capacities of less than 5 years have the potential to expand their permitted capacity and they are doing so. Some other facilities are expected to close after they complete a vertical expansion over an old unlined disposal cell.

The only clear problem that is related to capacity is the anticipated closure of Brooks Landfill which serves Sedgwick County. This landfill is operating under a vertical expansion permit and it must close on or before October 9, 2001. Sedgwick County has decided to transfer their waste, but the location to which the waste will be transferred will be decided by one or more private companies which will ultimately operate transfer stations in the county. Given the large volume of solid waste generated by Wichita and Sedgwick County, finding a facility for the waste within a reasonable transportation distance has proven to be controversial. As of late fall 2000, the future location for Sedgwick County's waste has not been identified.

Figure 3-3

Permitted Capacities for MSW Landfills



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